

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

ENGLISH TRANSLATION

Application No. 091207866, Filed 29 MAY 2002 (Taiwan), First Inventor: Kun-Chuan Lo

DUAL-FUNCTION TREADING EXERCISER

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The invention relates to a treading exerciser, more particularly to a dual-function treading exerciser.

2. Description of the Related Art

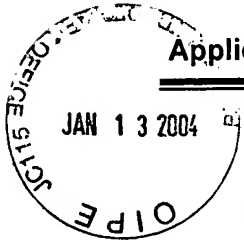
10 A conventional treading exerciser includes a treading platform, a continuous tread that extends around the platform, an upright frame that extends upwardly from a front end of the platform, a control panel mounted on a top portion of the upright frame, and a pair of fixed handles disposed on opposite sides of the control panel.

15 It is noted that the conventional treading exerciser only provides exercise function for the lower half portion of the user's body.

SUMMARY OF THE INVENTION

20 Therefore, the main object of the present invention is to provide a dual-function treading exerciser that can provide exercise function for the whole body of the user, that can train the user's forearm, stomach, and leg muscles, and that can improve functioning of the user's lungs.

25 According to the present invention, a dual-function treading exerciser comprises a treading platform, an upright frame, and a movable handle assembly. The treading platform has a front end, and is provided with



a continuous tread extending around the platform. The upright frame includes an upright frame body connected fixedly to the front end of the platform, and a pair of fixed handles connected fixedly to an upper portion of the frame body. The movable handle assembly includes a pair of pulling devices mounted on the frame, and a rotary shaft journaled on the frame. Each of the pulling devices includes a housing with a receiving chamber, a pulley disposed rotatably in the chamber, a pull cord wound on the pulley, a handgrip fastened to an end of the pull cord and movable rearwardly to unwind the pull cord from the pulley, and a biasing unit for biasing the pull cord to wind around the pulley when the cord is pulled rearwardly and is subsequently released.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, of which:

Figure 1 is a perspective view of the first preferred embodiment of a dual-function treading exerciser according to the present invention;

Figure 2 is a perspective view of a movable handle assembly of the first preferred embodiment;

Figure 3 is a partly exploded perspective view of the movable handle assembly of the first preferred embodiment;

Figure 4 is a fragmentary sectional view of the movable handle assembly of the first preferred embodiment;

5 Figure 5 is a view substantially similar to Figure 4, illustrating how an adjustable magnetic resistance device of the movable handle assembly can be adjusted so as to move toward a flywheel assembly, and how the flywheel assembly and pulleys of the pulling devices of the movable handle assembly rotate when the pull cords
10 of the pulling devices are pulled outwardly;

Figure 6 is a sectional schematic view of a lower pulling device of the movable handle assembly of the first preferred embodiment, illustrating a pull cord, a biasing unit, and a handgrip of the pulling device
15 in a normal state;

Figure 7 is a view substantially similar to Figure 6, illustrating the lower pulling device of the movable handle assembly of the first preferred embodiment in a state of use;

20 Figure 8 is a schematic view of the first preferred embodiment in a state of use; and

Figure 9 is a perspective view of a movable handle assembly of the second preferred embodiment of a dual-function treading exerciser according to the
25 present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before the present invention is described in greater

4

***** ACTIVITY REPORT *****

detail, it should be noted that like elements are denoted
by the same reference numerals throughout the
disclosure. TX/RX NO. 1959

Referring to Figure 1, the first preferred embodiment
of a dual-function treading exerciser according to the
present invention is shown to comprise a treading
platform 1, an upright frame 2, and a movable handle
assembly 4.

The treading platform 1 includes a base 101, a
continuous tread 102 exposed from a top portion of the
base 101 and disposed to extend around the platform 1,
a foot member 103 disposed on a bottom portion of the
base 101 for supporting the platform 1, and a front end
104.

The upright frame 2 includes an upright frame body
10 connected fixedly to the front end 104 of the platform
1, a control panel 20 mounted on the upright frame body
10 in a known manner, and a pair of fixed handles 30
connected fixedly to an upper portion of the frame body
10.

The movable handle assembly 4 is mounted on the
control panel 20 of the frame 2 (see Figure 1), and is
disposed substantially higher than the fixed handles
30 (see Figure 1) in this embodiment. Referring to
Figures 2, 3, and 8, the movable handle assembly 4 is
shown to include a support plate 40, a pair of
superimposed upper and lower pulling devices 50, 50'

mounted on a rear side surface of the plate 40, a flywheel assembly 70 mounted on a front side of the plate 40, a rotary shaft 60 journaled on the plate 40, and an adjustable magnetic resistance device 80 mounted on the plate 40 and disposed adjacent to the flywheel assembly 70.

Each of the upper and lower pulling devices 50, 50' includes a housing 51 with a receiving chamber 511, a pulley 52 disposed rotatably in the chamber 511, a unidirectional bearing 53, a pull cord 55 wound on the pulley 52, a handgrip 54, and a biasing unit. Since the pulling devices 50 are generally similar to each other in construction, only one of the pulling devices 50 will be described in the succeeding paragraph.

The housing 51 includes a bottom wall 511', an outer surrounding wall 513 that extends frontwardly from an outer periphery of the bottom wall 511', a central hole 510 for extension of the rotary shaft 60 therethrough, and an inner surrounding wall 515 that is disposed between the central hole 510 and the outer surrounding wall 513. A pulley-receiving chamber 512 is defined among the bottom wall 511', the outer surrounding wall 513, and the inner surrounding wall 515. A receiving space 514 is defined among the bottom wall 511', the inner surrounding wall 513, and the unidirectional bearing 53. The pulley-receiving chamber 512 and the receiving space 514 constitute the receiving chamber 511. The outer

surrounding wall 513 is formed with a notch 517, and has a positioning piece 518 that is inserted removably into the notch 517 and that has a cord hole 519. The inner surrounding wall 515 is formed with a retaining groove 516. The pulley 52 is disposed in the pulley-receiving chamber 512 in the housing 51, is formed with a reeling portion 522, an axial hole 521 defined by an annular inner wall 520 for receiving the unidirectional bearing 53 therein, and a receiving space 524 that is defined cooperatively by a bottom wall 523 and an annular outer wall 525 of the pulley 52 and that cooperates with the receiving space 514 in the housing 51 to confine the biasing unit between the housing 51 and the pulley 52. The pull cord 55 is wound on the pulley 52, and has a front end portion 551 fastened to the reeling portion 522 of the pulley 52, and a rear end portion 552 that extends out of the housing 51 and that is fastened to the handgrip 54. The unidirectional bearing 53 is disposed between the rotary shaft 60 and the pulley 52 so as to rotate the rotary shaft 60 synchronously with the pulley 52 only when the pulley 52 rotates in a direction, in which the pull cord 55 is unwound from the pulley 52. The handgrip 54 is movable rearwardly to unwind the pull cord 55 from the pulley 52. The handgrip 54 is disposed outside the housing 51, is formed with a through hole 541 for extension of the rear end portion 552 of the pull cord 55 therethrough, and is retained

on the pull cord 55 by tying the rear end portion 552 of the pull cord 55 into a knot, as shown in Figures 6 and 7. The biasing unit is used for biasing the pull cord 55 to wind around the pulley 52 when the pull cord 55 is pulled rearwardly and is subsequently released, and includes a spring member 526 connected between the housing 51 and the pulley 52 for biasing the pulley 52 to rotate in the chamber 512 in a predetermined direction. In this embodiment, the spring member 526 is a spiral spring that has one end 5262 inserted into the retaining groove 516 in the inner surrounding wall 515 of the housing 51, and the other end 5261 fastened to a post 527 on the bottom wall 523 of the pulley 52.

The only difference between the upper and lower pulling devices 50, 50' resides in that the housing 51 of the upper pulling device 50 is formed with three upper lugs 509 fixed to the support plate 40 by means of three bolts (B1) (only one is shown in Figure 3) that extend through the upper lugs 509 and the plate 40 to engage three nuts (N1), and three lower lugs 509'; while the housing 51 of the lower pulling device 50' is formed with three lugs 509" fixed threadedly to the lower lugs 509' by means of three bolts (B2).

The flywheel assembly 70 is mounted fixedly on the rotary shaft 60, and includes a flywheel 75 having a central hole 74, a pair of magnetically conductive brass rings 73 disposed respectively and fixedly on opposite

sides of the flywheel 75, and a protective member 76 that is mounted fixedly on the support plate 40 by means of three screws (B3) that extend through the protective member 76 and the plate 40 to engage three nuts (N2) (only one is shown in Figure 3). The rotary shaft 60 extends through the central hole 74 in the flywheel 75 in such a manner that the flywheel 75 is sleeved fixedly on the rotary shaft 60. The protective member 76 has a central hole 761 with a bearing 762 inserted therein. The rotary shaft 60 is journalled on the support plate 40 by means of a thrust bearing 77 and the bearing 762 so as to permit smooth rotation of the flywheel 75 relative to the plate 40.

The adjustable magnetic resistance device 80 is disposed adjacent to the flywheel assembly 70 so as to provide resistance to rotation of the flywheel assembly 70, and includes a positioning seat 81, a threaded shaft 83, and a magnet seat 82. The positioning seat 81 is fixed on the support plate 40, and has two spaced-apart parallel sliding rails 811. The threaded shaft 83 is journalled on the positioning seat 81, and has one end provided with a hand knob 831 to facilitate manual adjustment of the threaded shaft 83, and the other end formed with an externally threaded portion 832. The magnet seat 82 includes a U-shaped body 821 and two spaced-apart parallel sliding plates 822 that are connected fixedly to the U-shaped body 821 and that are

disposed respectively and slidably along the sliding rails 811. The body 821 has two opposite side walls 823, 824 which are provided respectively with two aligned magnet units 825, between which the flywheel assembly 70 is disposed, and a connecting wall 826 which interconnects the side walls 823, 824 fixedly and which is formed with a threaded hole 8261 that engages the externally threaded portion 832 of the threaded shaft 83 so as to move the U-shaped body 821 toward and away from the flywheel 75 when the threaded shaft 83 is rotated relative to the positioning seat 81, thereby adjusting magnitude of the resistance.

Referring to Figure 8, when performing a running exercise, the user's hands can grip the fixed handles 30 so as to obtain suitable body support, thereby preventing accidents due to imbalance. When the user performs a treading exercise or jogging, the user's hands can pull the handgrips 54 and move the foot and body portions accordingly. Due to the resistance provided by the spring members 526 (see Figure 5) of the biasing units when the handgrips 54 are pulled from the position shown in Figure 6 to the position shown in Figure 7, training of the user's forearms, stomach and leg muscles can be achieved, and functioning of the user's lungs can be improved, thereby effecting whole body exercise. Thus, the dual-function treading exerciser of the present invention does not only function as an ordinary

treading exerciser, but also can provide training of the user's hand portion, stomach portion and leg portion and improve functioning of the lungs while permitting movement of the user's body in a comfortable and natural manner.

Referring to Figures 3 and 4, with regard to the operation of the biasing units, because each of the upper and lower pulling devices 50, 50' is journaled to the rotary shaft 60 by means of the unidirectional bearing 53, when either of the handgrips 54 is pulled rearwardly, the corresponding pull cord 55 is unwound from the corresponding pulley 52 such that the corresponding pulley 52 rotates in a direction (A) (see Figure 7) so as to rotate the rotary shaft 60 and the flywheel 75 synchronously with the corresponding pulley 52. Subsequently, upon release of the handgrip 54, the corresponding spring member 526 biases the corresponding pull cord 55 to wind around the corresponding pulley 52. At this time, the corresponding pulley 52 rotates in a direction that is opposite to the direction (A) (see Figure 7) so that rotation of the corresponding pulley 52 cannot be transferred to the rotary shaft 60 and the flywheel 75.

Referring to Figures 5 and 7, when the handgrips 54 are pulled, due to the magnetic force applied on the flywheel 75 by the magnet units 825, the spring members 526 and the magnetic resistance device 80 provide

cooperatively a relatively great resistance to rearward movement of the handgrips 54 during exercise. Referring once again to Figure 8, because the movable handle assembly 4 is disposed substantially higher than the fixed handles 30, when the user uses the pulling devices 50, 50', the handgrips 54 are pulled rearwardly and downwardly such that movement of the handgrips 54 can train not only the forearm muscles, but also the stomach muscles.

Referring back to Figure 5, when an increased load of exercise is desired, the hand knob 831 is rotated so as to move the magnet seat 82 toward the flywheel 75 in a direction (B) in order to obtain a greater magnetic force. When the magnet seat 82 is moved away from the flywheel 75, as shown in Figure 4, the magnetic resistance is reduced.

Referring to Figure 9, the adjustable magnetic resistance device 90 of the second preferred embodiment of the dual-function treading exerciser according to the present invention is shown to be substantially similar to the adjustable magnetic resistance device 80 (see Figure 3) of the first preferred embodiment. However, in this embodiment, the magnetic resistance device 90 further includes a motor 91 and a gear 93. The motor is disposed on the support plate 40, and is provided with a motor shaft 92. The gear 93 is sleeved fixedly on the motor shaft 92, and engages the externally

threaded portion of the threaded shaft 83 so as to transfer rotation of the motor shaft 92 to the threaded shaft 83.

The advantages of the dual-function treading exerciser of the present invention can be summarized as follows:

1. The dual-function treading exerciser of the present invention does not only have fixed handles 30 to support the user during a running exercise, but also has a movable handle assembly 4 that can effectively train forearm, stomach, and leg muscles of the user and that can improve functioning of the user's lungs, thereby effecting exercise of the user's whole body.

2. The design of the movable handle assembly 4, which includes the flywheel assembly 70 and the adjustable magnetic resistance device 80, enables the user to obtain a greater exercise effect. Furthermore, the presence of the upper and lower pulling devices 50, 50' in the movable handle assembly 4 enables the user's hands to follow the body movement in a comfortable and natural manner.

3. The movable handle assembly 4 is disposed higher than the fixed handles 30 so as to train not only the forearm muscles, but the stomach muscles as well.

While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this

To: Nathan. ~~From:~~ 8 Pages.

13

From: Joe

invention is not limited to the disclosed embodiments
but is intended to cover various arrangements included
within the spirit and scope of the broadest
interpretation so as to encompass all such modifications
5 and equivalent arrangements.

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

WE CLAIM:

1. A dual-function treading exerciser comprising:

a treading platform having a front end and provided with a continuous tread extending around said platform;

5 an upright frame including an upright frame body connected fixedly to said front end of said platform, and a pair of fixed handles connected fixedly to an upper portion of said frame body; and

10 a movable handle assembly including a pair of pulling devices mounted on said frame, and a rotary shaft journaled on said frame, each of said pulling devices including a housing with a receiving chamber, a pulley disposed rotatably in said chamber, a pull cord wound on said pulley, a handgrip fastened to an end of said
15 pull cord and movable rearwardly to unwind said pull cord from said pulley, and a biasing unit for biasing said pull cord to wind around said pulley when said cord is pulled rearwardly and is subsequently released.

2. The dual-function treading exerciser of Claim 1,
20 wherein said movable handle assembly is disposed substantially higher than said fixed handles.

3. The dual-function treading exerciser of Claim 1,
wherein said biasing unit of each of said pulling devices
25 includes a spring member connected between a respective one of said housings and a respective one of said pulleys for biasing the respective one of said pulleys to rotate in said chamber in the respective one of said housings

in a predetermined direction.

4. The dual-function treading exerciser of Claim 3, wherein said spring member is a spiral spring that is fastened to the respective one of said housings at one end and to the respective one of said pulleys at the other end.

5. The dual-function treading exerciser of Claim 1, wherein said movable handle assembly further includes:
a flywheel assembly mounted fixedly on said rotary shaft;

a unidirectional bearing disposed between said rotary shaft and each of said pulleys so as to rotate said rotary shaft synchronously with said pulleys only when said pulleys rotate in a direction, in which said pull cords are unwound from said pulleys; and

an adjustable magnetic resistance device disposed adjacent to said flywheel assembly so as to provide resistance to rotation of said flywheel assembly.

6. The dual-function treading exerciser of Claim 5, wherein said flywheel assembly includes a flywheel, and a pair of magnetically conductive rings disposed respectively and fixedly on opposite sides of said flywheel, said adjustable magnetic resistance device including:

a positioning seat fixed on said frame and having two spaced-apart parallel sliding rails;

a threaded shaft journaled on said positioning seat

and having an externally threaded portion; and

a magnet seat including a U-shaped body and two spaced-apart parallel sliding plates that are connected fixedly to said U-shaped body and that are disposed respectively and slidably along said sliding rails, said body having two opposite side walls which are provided respectively with two aligned magnet units, between which said flywheel assembly is disposed, and a connecting wall which interconnects said side walls fixedly and which is formed with a threaded hole that engages said threaded shaft so as to move said U-shaped body toward and away from said flywheel when said threaded shaft is rotated relative to said positioning seat, thereby adjusting magnitude of the resistance.

7. The dual-function treading exerciser of Claim 6, wherein said magnetic resistance device further includes:

a motor disposed on said frame and provided with a motor shaft; and

a gear sleeved fixedly on said motor shaft and engaging said externally threaded portion of said threaded shaft so as to transfer rotation of said motor shaft to said threaded shaft.

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

ABSTRACT OF THE DISCLOSURE

A dual-function treading exerciser includes a treading platform, an upright frame, and a movable handle assembly. The frame includes an upright frame body and two fixed handles connected fixedly to an upper portion of the frame body. The movable handle assembly includes two pulling devices and a rotary shaft journaled on the frame. Each pulling device includes a housing with a receiving chamber, a pulley disposed rotatably in the chamber, a pull cord wound on the pulley, a handgrip fastened to an end of the cord and movable rearwardly to unwind the cord from the pulley, and a biasing unit for biasing the cord to wind around the pulley when the cord is pulled rearwardly and is subsequently released.